STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
State Revolving Fund Loan Program
L & C Tower, 8th Floor
401 Church Street
Nashville, TN 37243

FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
Madisonville (Monroe County), Tennessee
Loan No. CWA 2007-205

July 27, 2009

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by Section 511(c)(1) of the Clean Water Act, is the approval of a facilities plan prepared pursuant to Title VI of the Clean Water Act. In making this determination, the State Revolving Fund (SRF) Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The state's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the SRF Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Madisonville has completed the facilities plan entitled "Wastewater Treatment Improvements" dated December, 2008. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Madisonville. This project includes the conversion of the existing 0.8 million gallons a day (MGD) Madisonville Wastewater Treatment Plant (WWTP) to a 1.5 MGD equalization basin and pump station and the construction of approximately 8.3 miles of 16-inch diameter ductile iron pipe forcemain to transport screened wastewater to the Tellico Reservoir Development Agency WWTP for treatment and eliminate the outfall discharge to Bat Creek. The total estimated project cost is $5,836,500. A combination of American Recovery Act of 2009 (ARRA) funds and a Clean Water State Revolving Fund (CWSRF) loan has been requested for this project. This project will be funded with a $3,501,900 loan and $2,334,600 in principal forgiveness that will not have to be repaid by the City of Madisonville.

Attached is an Environmental Assessment containing detailed information supporting this proposed action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Sam R. Gaddipati, Environmental Manager
State Revolving Fund Loan Program
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or contact him by telephone at (615) 532-0445 or by e-mail at sam.gaddipati@tn.gov.

ENVIRONMENTAL ASSESSMENT
Madisonville (Monroe County), Tennessee
Loan No. CWA 2007-205

July 27, 2009

A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Madisonville. This project includes the conversion of the existing 0.8 million gallons a day (MGD) Madisonville Wastewater Treatment Plant (WWTP) to a 1.5 MGD equalization basin and pump station and the construction of approximately 8.3 miles of 16-inch diameter ductile iron pipe (DIP) forcemain to transport screened wastewater to the Tellico Reservoir Development Agency (TRDA) WWTP for treatment and eliminate the outfall discharge to Bat Creek. The facilities planning area and project location are indicated on Figure No. 1 of this Environmental Assessment. Descriptions of the proposed facilities and actions included in this project are listed below:

FUNDING STATUS

The facilities described above comprise the scope of Loan No. CWA 2007-205 scheduled for funding in fiscal year 2010. The estimated project costs are summarized in the following tabulation:

PROJECT CLASSIFICATIONS	COSTS ($)
Administrative & Legal	44,000
Land Costs & Appraisals	45,000
Planning Fees	48,500
Design Fees	83,650
Engineering Basic Fees	198,000
Other Engineering Fees	60,000
Resident Inspection	172,900
Construction	4,471,900
Miscellaneous	120,000
Contingencies	592,550
TOTAL	**5,836,500**
Loan	3,501,900
Amount Designated for Principal Forgiveness (Will not have to be repaid)	2,334,600

The City of Madisonville has applied for a combination of American Recovery Act of 2009 (ARRA 2009) funds and a Clean Water State Revolving Fund (CWSRF) loan. This project will be funded with a $3,501,900 loan and $2,334,600 in principal forgiveness that will not have to be repaid by the City of Madisonville.

B. EXISTING ENVIRONMENT

The City of Madisonville's Planning Area is located in Monroe County in southeast Tennessee. A discussion of existing environmental features in the area includes the following:

SURFACE WATERS

Surface waters within the proposed planning area include the Little Tennessee River and its tributaries, Tellico Lake and Bat Creek. Designated uses for the Little Tennessee River include domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, and navigation. The City of Madisonville buys potable water from the Tellico Area Service System (TASS). TASS Water Treatment Plant's raw water intake is located on Tellico Lake on the Little Tennessee River. The TRDA WWTP's discharges treated effluent at River Mile 16.1 on Tellico Lake, downstream of the surface water intake.

GROUNDWATER

The Valley and Ridge Aquifer (also known as the Cambrian Ordovician Carbonate Aquifer) that underlies the project area is a karst formation. It is composed of extensively folded and faulted Cambrian and Ordovician aged carbonate, sandstone, and shale. Typically, the sandstone and shale units are poor aquifers, while the limestone and dolomitic aquifers can have high yielding wells. Well yields from this aquifer typically range between 5 and 200 gallons per minute (gpm).

SOILS

Soil associations occurring in City of Madisonville's Planning Area include the Fullerton-Dewey-Dunmore-Sequoia Association. This group consists of deep to very deep, well drained, and moderately permeable soils that formed in limestone, dolomite, shale, and siltstone residua. These soils are found on gently sloping to very steep uplands.

TOPOGRAPHY

The City of Madisonville's Planning Area is located in the Valley and Ridge Region and is characterized by numerous ridges and valleys. The geology of this region consists of limestone, shale, sandstone, siltstone, phyllite, schist, and granite from the Cambrian Period to the Mississippian Period. The topography of the proposed project area ranges from 900 feet to 1,000 feet above mean seal level (MSL). The City's average elevation is 980 ft MSL.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers or unique agricultural, scientific, cultural, ecological, or natural areas were identified in the City of Madisonville's Planning Area.

C. EXISTING WASTEWATER FACILITIES

The City of Madisonville owns and operates a 0.8 million gallons per day (MGD) WWTP and wastewater collection system. The WWTP, constructed in 1961 and last expanded in 2000, consists of an influent rotoscreen and pump station, a trickling filter, intermediate clarification, a rotating biological contactor, final clarification, sludge holding, belt filter press, chlorination and de-chlorination, and a biosolids dewatering belt filter press. Sludge is dewatered and disposed of at a state-approved Class 1 landfill in McMinn County.

The Madisonville WWTP discharges treated effluent at River Mile 19.3 of Bat Creek. The WWTP currently operates under the National Pollutant Discharge Elimination System (NPDES) Permit No. TN0025020 that includes the following parameters and effluent limitations:

PARAMETER	EFFLUENT LIMITATIONS
$CBOD_5$ (May 1-October 31)	10 milligrams per liter (mg/l)
$CBOD_5$ (Nov. 1-April 30)	20 milligrams per liter (mg/l)
Suspended Solids	30 mg/l
Fecal Coliform	200/100 colonies per milliliter
Dissolved Oxygen	6.0 instantaneous minimum
Ammonia as N (May 1-October 31)	1.25 mg/l
Ammonia as N (Nov. 1-April 30)	2.5 mg/l
Chlorine Residual, Total	0.029 instantaneous maximum
Settleable Solids	1.0 daily maximum (milliliter/liter)
pH	6.0-9.0 (Standard Units)

The City of Madisonville's sewer collection system was originally installed in 1960 and consists of approximately 29 miles of 6-inch through 24-inch diameter gravity sewer, approximately 5 miles of 2-inch through 6-inch forcemain, 13 pump stations with a capacity range from 75 to 550 gpm, and approximately 500 manholes. The collection system pipe materials are approximately 30% vitrified clay, 35% DIP, and 45% polyvinyl chloride.

The Madisonville WWTP has repeatedly violated its NPDES Permit for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia nitrogen, suspended solids, and wet weather overflows. The WWTP is currently operating at 95% of its design capacity. Flows into the WWTP have frequently exceeded the design capacity resulting in several Notices of Violations (NOVs). Extraneous flows consume sewer capacity causing overflows in the collection system and overload the treatment plant facilities.

Madisonville has implemented an Infiltration/Inflow (I/I) Reduction Program to identify and correct the I/I problems within the wastewater collection system. Some collection system improvements have been completed.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

The Madisonville WWTP is experiencing mechanical failures and operational problems. During wet weather conditions, peak flows exceed the current design capacity resulting in overflows in the collection system and at the WWTP. Also, because of the age of the existing equipment, the WWTP has violated its discharge permit multiple times during the last several years. The Tennessee Department of Environment and Conservation (TDEC) issued a Director's Order on January 4, 2007, citing permit violations for $CBOD_5$, ammonia nitrogen, suspended solids, and wet weather overflows. Bat Creek at River Mile 19.3 is not supportive of its designated use classifications because of Escherichia Coli Bacteria and is listed is on TDEC's 303(d) List of Impaired Waters. Excessive levels of fecal coliform bacteria in wastewater pose health risks to the area population and high concentrations of ammonia are toxic to aquatic life. Therefore, the City of Madisonville proposes to convert the existing WWTP to a equalization basing and pump the wastewater to TRDA for treatment thereby eliminating the outfall discharge on Bat Creek which will improve the water quality condition in the area and protect the environment and public health.

Existing and projected facility conditions are shown in the following table:

EXISTING AND PROJECTED FACILITY CONDITIONS

POPULATION	EXISTING (2009)	PROJECTED (2029)
City of Madisonville	4,134	5,200
% Sewered	66%	100%
Planning Area Excluding Madisonville	0	0
% Sewered	NA	NA
Total Planning Area	4,134	5,200
% Sewered	66%	100%

Madisonville WWTP FLOWS (GPD)	EXISTING (2009)	PROJECTED (2029)*
Domestic/Commercial	264,000	1,065,000
Industrial	6,000	10,000
Infiltration	245,000	230,000
Inflow (during rainfall events)	245,000	230,000
TOTAL	760,000	1,535,000

*This represents the projected Madisonville flows transported to TRDA for treatment.

The City of Madisonville has entered into an intermunicipal agreement with TRDA to treat the wastewater flows from the City of Madisonville. TRDA's WWTP will be upgraded and expanded in order to treat the wastewater flows that will be generated by the City of Madisonville.

E. ALTERNATIVES ANALYSIS

Several alternatives, including a "No-action" alternative, were evaluated for wastewater treatment and management in the December, 2008 facilities plan. A summary discussion of the evaluation of each alternative for wastewater treatment and the selection of the recommended plan follows:

NO ACTION

The "No-action" approach was not a viable alternative. The state and federal governments have issued discharge limitations that must be met in order to maintain or improve surface water conditions. These parameters cannot be met by the facilities as they now exist. Therefore, some action must be taken to protect the environment and public health, and this alternative was rejected.

ALTERNATIVES FOR TREATMENT

WWTP Expansion using New Membrane Bioreactor (MBR) with Biologic Nutrient Removal

This alternative consists of the construction of a new membrane WWTP to remove nitrogen and phosphorus and utilizes the activated sludge process for biological treatment of wastewater to reduce the BOD and ammonia loading to meet current NPDES permit limits. The MBR with Biologic Nutrient Removal, produces a high quality tertiary level effluent. This alternative also includes constructing a new influent pump station, chlorine contact basin, belt filter press, conversion of the existing primary clarifier to a sludge holding tank, a generator, and other miscellaneous upgrades. The treated effluent will be discharged at the existing WWTP outfall location. This alternative was not the most cost-effective and was rejected.

New 1.25 MGD Activated Sludge WWTP

This alternative consists of the construction of a new 1.25 MGD Activated Sludge WWTP adjacent to Tellico Lake. This alternative will also include two oxidation ditches, two final clarifiers, RAS/WAS pump station, chlorination/dechlorination, sludge holding tank, chlorine contact basin, sludge dewatering facilities, the conversion of the existing WWTP to a pump station and flow equalization tanks, and the construction of approximately 7.6 miles of 16-inch diameter DIP sewer forcemain to transport screened wastewater from the existing WWTP to the new WWTP site. The treated effluent will be discharged to a new permitted outfall on Tellico Lake. This alternative was not the most cost-effective and was rejected.

Convert Existing Facility to a Equalization Tank and Treatment at TRDA

This alternative consists of the conversion of the existing 0.8 MGD Madisonville WWTP to a 1.5 MGD equalization basin and pump station and the construction of approximately 8.3 miles of 16-inch diameter DIP forcemain to transport screened wastewater to the TRDA WWTP for treatment and eliminate the outfall discharge to Bat Creek. This alternative is the most cost-effective and was selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be a reduction in permit violations, the improvement of water quality conditions in the area, and protection of the environment and public health.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will be temporary and only necessary during construction. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It will contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It

will include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

No prime or unique agricultural lands or wetlands were identified and therefore will not be adversely affected. No endangered species of flora or fauna were identified within the proposed construction corridor.

The acquisition of applicable United States Army, Corps of Engineers, permits will be required prior to the approval of construction plans and specifications.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting will be held on August 5, 2009, at 6:00 p.m., local time. The selected plan for wastewater collection and treatment and user charges will be described to the public, and their input will be received. Any unresolved public objections that may arise at the public meeting regarding this project will be addressed.

The annual median household income for the Madisonville is $48,876. The current sewer user rate for the typical residential user (5,000 gallons per month) will increase from $23.94 to $31.95 per month on July 1, 2010. The total incremental annual cost for this project is $96.12, which is approximately 0.19 percent of the current annual household median income.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development (ECD)
3. TDEC, Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation (TDOT)
5. TDEC, Division of Groundwater Protection (DGWP)
6. Tennessee Historical Commission
7. TDEC, Division of Archaeology (DA)
8. TDEC, Division of Natural Areas (DNA)
9. TDEC, Division of Solid Waste Management (DSWM)
10. TDEC, Division of Water Pollution Control (DWPC)
11. TDEC, Division of Water Supply (DWS)
12. Tennessee Wildlife Resources Agency (TWRA)
13. United States Army Corps of Engineers (USACE)
14. United States Fish and Wildlife Service (USF&W)
15. City of Madisonville
16. Monroe County
17. McGill Associates

H. SPECIAL CONDITIONS

The State Revolving Fund loan agreement will have the following special condition:

1. The City of Madisonville shall obtain applicable Section 10/404 Permits from the U. S. Army Corps of Engineers to meet the requirements of wetlands protection and stream-crossing statutes. A letter from the Corps stating that the permits are not needed will obviate this requirement.